

Walleye Restoration in the Milwaukee River Estuary
Open House
November 30, 2004

FREQUENTLY ASKED QUESTIONS

1. What is the genetic and strain background of walleyes that have been stocked into the Milwaukee River?
2. Where do the walleye go on a seasonal basis?
3. How many walleyes have been harvested since the stocking program began?
4. Are the walleye safe to eat?
5. Is there natural reproduction occurring in the lower Milwaukee River?
6. Early on in the project the figure of two walleyes per acre was used as a goal to achieve natural reproduction. Why hasn't this density been reached?
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8. Isn't the estimated loss of nearly 30,000 Chinook salmon smolts to walleye predation in 1997 detrimental to the Chinook fishery?
9. Has the change in stocking location for Chinook salmon worked to reduce predation on Chinook smolts?
10. The DNR has been using net pens to hold stocked salmon until they can be acclimated and released. Why aren't net pens used for other species and in other ports?
11. Why was the predation study limited to Chinook salmon smolts and not conducted after every salmon and trout stocking event?
12. Data show that at the current population levels there doesn't seem to be a problem with walleyes preying on trout and salmon smolts. What if a large population of walleyes was ever established?
13. What is the funding source for this project?

1. What is the genetic and strain background of walleyes that have been stocked into the Milwaukee River?

Based on a genetic study conducted by the Bureau of Research, Fisheries Management decided the best location to obtain walleye that were of Great Lakes strain lineage was from the Winnebago system. This decision was based on the fact that 1) the genetics of walleye tested from Lake Winnebago were most similar to the strain of walleyes that must have been present in Lake Michigan; and 2) these walleyes were in the Lake Michigan drainage basin. While there is no true Great Lakes strain walleye, these Winnebago walleye were probably the closest to that strain, so they were chosen to be stocked.

Walleye were obtained from the Wolf River in 1998-2001. However, in each year, it was very difficult and time consuming to obtain the necessary eggs to meet the 10,000 extended growth quota. At the same time, walleyes were found in Puckaway Lake. Subsequent genetic analysis revealed that these Puckaway Lake walleyes were genetically similar to the Winnebago system walleyes. Therefore, the majority of walleyes stocked in the past and continuing into the future will come from Puckaway Lake, which has been shown genetically to be identical to the Winnebago walleyes and of Great Lakes strain origin.

2. Where do the walleye go on a seasonal basis?

We examined the seasonal movement patterns of adult walleye using radio telemetry. A pilot project was initiated in spring 1999 using nine refurbished transmitters with a battery life of 90 days. This effort provided limited data but did serve as a starting point for a fully funded project beginning in spring 2000. From spring 2000 through May 2001 we implanted 36 walleye with radio transmitters. These fish were tracked from April 2000 until May 2004, with tracking generally occurring on a weekly basis.

The data collected indicated a strong seasonal movement pattern coinciding with changing water temperatures and spawning activity. In winter the majority of the walleyes were found in the warmer water associated with a power plant discharge located on the Menomonee River and the adjoining Burnham and Menomonee Canals. This preference is likely due to the more favorable conditions and the presence of large numbers of gizzard shad found in this vicinity. In spring, the walleyes tended to move upstream on the Milwaukee River, with fish found below the former North Avenue Dam and further upstream. Shocking surveys confirmed the presence of fish of comparable size in spawning condition in the reaches upstream of the dam, so it has been inferred that the radio-tagged fish were engaged in a spawning migration. This upstream movement places the walleyes farther away from the current Chinook salmon stocking site, located in McKinley Marina, and serves to lessen the potential for predation by walleyes on Chinook smolts. This movement also places the walleyes upstream of the stocking locations for the other species of trout and salmon. Summer found the walleyes in the Milwaukee Harbor and lower Milwaukee River, presumably due to preference for cooler water temperatures.

3. How many walleyes have been harvested since the stocking program began?

The Wisconsin DNR conducts an annual creel survey of anglers on Lake Michigan and Green Bay to generate an estimate of angler effort and harvest for all major game species. The survey covers just the daylight hours from sunrise to sunset. Some of the walleye harvest occurs at night and during the winter months when the survey is not running. However, we do calculate the walleye harvest during the day from March through October while the survey is conducted.

A total of 1,443 walleyes have been harvested since 1996 by anglers in the Milwaukee Estuary. The majority of the harvest has been concentrated in 2002 and 2003 when 401 and 469 walleyes were harvested. This indicates a growing interest in the walleye fishery from anglers.

4. Are the walleye safe to eat?

The walleye found in the lower Milwaukee River and harbor contain some level of contaminants called polychlorinated biphenyls (PCBs). To minimize exposure, the fish consumption advice recommends eating no more than one meal per month of walleye less than 18 inches, and no more than one meal every two months for walleye over 18 inches. By comparison, Chinook salmon less than 32 inches are also in the one meal per month category, and Chinooks over 32 inches fall in the one meal every two months group. (See handout for more information.)

5. Is there natural reproduction occurring in the lower Milwaukee River?

Since the removal of North Avenue Dam in 1997, there has been remarkable improvement in Milwaukee River water quality as well as stream habitat. In addition, WDNR has contributed to the improvement of habitat conditions by adding structures, such as bend way weirs and bank stabilization features. While the removal of the dam has improved access to suitable habitat, more habitat enhancement projects would be beneficial. However, at this point, we are not sure if successful natural reproduction of walleye is going on in the area. We have not yet documented any young-of-the-year walleye in our surveys, although we did document mature and spent walleye in the spring spawning runs.

6. Early on in the project the figure of two walleyes per acre was used as a goal to achieve natural reproduction. Why hasn't this density been reached?

We had hoped to achieve the density of two walleyes per acre by stocking either 30,000 regular fingerlings (June stocking, 1 ½ to 2 inches long) or 10,000 extended growth fingerlings (late September or early October stocking, 6 to 8 inches long). Thanks to funding provided by the Lakeshore Fishermans Sports Club, Lakeridge Boat Club, Walleyes Unlimited, Walleyes for Tomorrow and others, we were able to raise walleyes to extended growth size.

In spite of the fact that we have excellent hatcheries and hatchery managers, we were only able to achieve the goal of 10,000 extended growth walleyes for 4 of the 9 years of stocking. Most of the problems arose because we were committed to using the proper strain of walleye that stood the best chance of eventually becoming self-sustaining in the Milwaukee River and Estuary. Isolating 10,000 fish in a hatchery that raises over a million walleyes proved to be difficult. There were also problems with various diseases and parasites common in the fish rearing business. A private vendor was contracted for one year with little success.

The fish that we have stocked are growing well and appear to be very healthy.

7. What have been the effects of the walleye stocking program on the harvest and harvest rates of salmon and trout?

The Wisconsin DNR conducts an annual creel survey of anglers on Lake Michigan and Green Bay to generate an estimate of angler effort and harvest for all major game species. To analyze data from the creel survey we used the following parameters. We grouped the data into 2 time periods – 1994 through 1997 and 1998 through 2001. This represents a time period before and after walleyes would have a mortality impact on the stocked salmon and trout.

The harvest and harvest rate of the four major salmon and trout species were very similar between the 2 time periods. About 17,000 Chinook (0.13 fish per hour) were harvested in the early time period compared to over 20,000 (0.16 fish per hour) in the late period. This pattern was also seen for rainbow trout. Coho salmon and brown trout were harvested slightly more and had higher harvest rates in the early period compared to the late. Species specific harvest rates measure the number of fish harvested per hour using the directed angling effort. In general, the species specific harvest rates were similar between the two time periods and were higher for stream anglers compared to the other fishery types.

In summary, results from the creel survey analyzing data from the two time periods, one before and one after walleyes would have had a mortality impact on stocked salmon and trout, showed very little difference. All the parameters were similar between the periods. These results suggest that for the late time period stocked walleyes have not appreciably added to the mortality of stocked salmon and trout when compared to results from the early time period.

8. Isn't the estimated loss of nearly 30,000 Chinook salmon smolts to walleye predation in 1997 detrimental to the Chinook fishery?

Our approach to examine the loss of Chinook salmon smolts due to walleye predation in 1996 and 1997 was to depict a worst case scenario. In both years we stocked over 100,000 (144,000 in 1996 and 181,000 in 1997) Chinook salmon smolts at the same location where extended growth walleye were stocked in previous years, thus creating an artificial abundance of prey in a small stretch of the river. The estimate also assumed that all the surviving walleye were confined to the same area. However, when we look at the return rate of these year classes of Chinook salmon to the fishery in later years, there was a remarkable rate of return, providing a phenomenal Chinook fishery. This suggests that the estimated loss at the smolt stage due to walleye predation was either grossly overestimated or has not caused any significant damage to the overall fishery. However, as a precautionary step, WDNR decided to change the location of Chinook salmon stocking from the river to McKinley Marina.

9. Has the change in stocking location for Chinook salmon worked to reduce predation on Chinook smolts?

Yes, it has! Following is a table that shows the predatory impact on stocked Chinook smolts in the lower Milwaukee River and Harbor.

Year	# Chinook stocked	Stocking location	Impact
1996	144,250	Below North Ave. Dam	Moderate
1997	181,000	Below North Ave. Dam	High
1998	145,000	McKinley Marina	Zero
1999	144,000	McKinley Marina	Zero
2000	143,900	McKinley Marina	Zero
2001	151,000	McKinley Marina	Zero
2002	122,300	McKinley Marina	Zero
2003	145,000	McKinley Marina	Zero
2004	144,000	McKinley Marina	Zero

10. The DNR has been using net pens to hold stocked salmon until they can be acclimated and released. Why aren't net pens used for other species and in other ports?

There are two main reasons why net pen use is not more widespread:

First of all, net pens have been successful in the Milwaukee Harbor because the cooperation of the Milwaukee Great Lakes Sports Fishing Club. The Department does not have the resources

to transport and maintain net pens. The GLSF club coordinates with the Department on the location and placement of the pens.

Another important reason why net pens are not used in more locations is because many of our preferred stocking locations are in rivers. Our Lake Michigan tributary rivers and streams are very flashy. If a net pen was placed in a river and there was a significant rain event, the resulting high water and sediment load could wipe out all the fish in a short period.

11. Why was the predation study limited to Chinook salmon smolts and not conducted after every salmon and trout stocking event?

Chinook salmon were chosen for the predation study because of their small stocking size (2 – 3 inches) compared to the other stocked trout and salmon (6 – 7 inches). If walleye predation on stocked salmon or trout were to occur, then this effect would be most notable on the smallest fish that we stock, the Chinook salmon.

12. Data show that at the current population levels there doesn't seem to be a problem with walleyes preying on trout and salmon smolts. What if a large population of walleyes was ever established?

Although we believe that there is habitat available to support a limited walleye fishery, it is unlikely that a large population would ever be established. Available spawning habitat may be a limiting factor.

If conditions improved to the point where a large walleye population was established and it proved to be detrimental to the salmonid fishery, there would be options available. Obviously any walleye stocking would be curtailed. With the amount of fishing pressure that this area receives, liberalized fishing regulations, if necessary, would reduce a large walleye population.

13. What is the funding source for this project?

Financial assistance for this project came from multiple sources. Following is a table indicating contributions from external partners and WDNR funding. (This does not include any equipment or labor provided by clubs.)

Date	Source	Purpose	Amount
1995	Lakeshore Fisherman Sports Club	Initial funding to raise 10,000 extended growth walleye fingerlings	\$10,000
1996	Lakeshore Fisherman Sports Club and Lakeridge Boat Club (joint offer)	Continuation of the project	\$2,500
1997-98	WDNR annual funding	Approved project costs	\$2,812.50
1998-99	WDNR annual funding	Approved project costs	\$2,812.50
1998	Walleyes for Tomorrow	Paid private hatchery to raise extended growth walleye fingerlings	Private fund

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Date	Source	Purpose	Amount
1999-00	WDNR annual funding	Approved project to cover the cost of evaluation, radio telemetry, and marking evaluation	\$15,650
2000-01	WDNR annual funding	Approved project to cover the cost of evaluation, radio telemetry, and marking evaluation	\$15,650
2000	Walleyes for Tomorrow	Cost of raising extended growth walleye fingerlings	\$5,000
2000	Walleyes Unlimited	Purchase of new radio tracking equipment	\$2,800
2001	Lakeridge Boat Club	Purchase of equipment for fish age determination	\$4,000
2001	Walleyes for Tomorrow	Cost of raising extended growth walleye fingerlings	\$5,000
2001-02	WDNR annual funding	Approved project to cover the cost of evaluation, radio telemetry, and marking evaluation	\$8,347
2002	Walleyes for Tomorrow	Cost of raising extended growth walleye fingerlings	\$5,000
2002-03	WDNR annual funding	Approved project to cover the cost of evaluation, radio telemetry, and marking evaluation	\$9,867
2003	Walleyes for Tomorrow	Cost of raising extended growth walleye fingerlings	\$5,000
2004	Walleyes for Tomorrow	Cost of raising extended growth walleye fingerlings	\$7,500